http://www.postandcourier.com/news/contractor-wasted-millions-on-unnecessary-supplies-for-s-c-s/article_43eeba82-ba6f-11e7-8065-2398b073b4e0.html

TOP STORY

# Contractor wasted millions on unnecessary supplies for S.C.'s failed nuclear reactors

**By Andrew Brown abrown@postandcourier.com** Nov 5, 2017 Updated 48 min ago

Officials halted construction on the V.C. Summer nuclear project near Jenkinsville, S.C. High Flyer © 2017/Provided Buy

High Flyer © 2017

COLUMBIA — Westinghouse Electric squandered millions of dollars on unnecessary supplies in its failed attempt to build two nuclear reactors in South Carolina, including tens of thousands of hand-machined nuts that cost $114 apiece when a sturdier $2 alternative was available, a Post and Courier investigation found.

Internal cost analyses and interviews with four engineers who worked on the project highlight

how poorly vetted designs, questionable purchasing decisions and improperly stored materials contributed to millions of dollars in needless spending by Westinghouse, the project's primary contractor.

Engineers were eventually able to shave nearly a half-million dollars off one order of nuts alone. But millions more had likely been wasted before the problem was recognized, engineers said. And that's just one small element of a massive project where vast piles of equipment and parts still lie unused, exposed to the elements and rusting away.

Those costs could be passed on to millions of SCANA and Santee Cooper customers in the coming decades. SCANA's more than 700,000 electric customers already pay $37 million a month, or 18 percent of their bill, for the $9 billion unfinished reactors.

Westinghouse declined to comment for this story. Santee Cooper said the public utility was unaware of the nuts or other questionable purchases. SCANA said it would address any issues with the failed construction project through pending court cases and hearings in front of South Carolina's utility regulators.

More than 5,000 workers streamed from V.C. Summer Nuclear Station when the project was canceled in late July. Welders dropped equipment where they stood. Workers discarded their security passes. Abandoned trucks idled at the gate to the sprawling construction site.

A project that promised to ignite a nuclear renaissance in the United States ended with only a third of the reactors built. More than 90 percent of the parts and materials, however, lay in tents, fields and garages on the sprawling Fairfield County property. Other supplies were stored in off-site warehouses.

The inventory included boxes of bolts, spools of pipe and stacks of electrical breakers — all purchased at the discretion of Westinghouse and the other construction contractors that circulated through the project over the past nine years.

"We were told cost doesn't matter," said one engineer, who, like others, asked not to be named for fear of being blackballed by other companies in the industry. "Can you imagine that mentality? Cost doesn't matter?"

**Extravagance**

The Post and Courier obtained documents from V.C. Summer engineers that detail concerns

about the costs of supplies, including orders for thousands of half-inch nuts.

Half-inch nuts can be found at any local hardware store. They're roughly the size of a nickel and cost a couple bucks. But Westinghouse paid $114 a piece for hand-machined nuts to lock various pieces of equipment in place. Few suppliers in the United States produced that type of nut.

An even sturdier alternative was available and 51 times cheaper, according to documents provided to The Post and Courier. But inexperienced designers in Pittsburgh and Charlotte specified the $114 part in construction plans without recognizing the cost, engineers said.

The pricey nut orders went unchallenged by Westinghouse's purchasing staff for years, several engineers said. Workers ordering the materials didn't question why one part was ordered over another. They just paid the suppliers. Construction workers had little reason to worry about the cost. They simply knew how many parts they needed on a given day, engineers and other former Westinghouse employees said.

Westinghouse would not disclose how many of the costly nuts were purchased, and the manufacturing company, Dubose National Energy Services, didn't respond to calls or emails about how many were produced for the reactors.

But V.C. Summer engineers estimated several million dollars were wasted on expensive nuts over the life of the project. Those same engineers finally recognized the problem earlier this year after they found a receipt from the manufacturer that detailed the enormous cost.

As Westinghouse veered toward bankruptcy this year, the company ordered another 4,000 nuts. But this time, engineers stepped in and swapped the purchase for the $2.20 alternative.

The move saved nearly $450,000. That's enough money to cover the monthly electric bills of more than 3,000 average SCANA customers.

But one V.C. Summer engineer said purchases of other pricey parts were never reined in, including orders for $40 washers and $50 bolts. And other cost-saving recommendations that were proposed by engineers simply didn't gain traction.

One engineer recalled a proposal to save between $3 million and $5 million by changing part of the reactors' electrical wiring. Most of the power plants' electrical systems were unnecessarily large for what was needed, engineers said.

But when the plan was shared with construction managers, it was greeted with indifference, the engineer said.

"Why are you bringing this to me?" he remembers his boss asking.

**Stacking up the profits**

Why did these wasteful and extravagant purchases go on for so long? The answer may lie in the contract between Westinghouse and the plant's owners, SCANA and Santee Cooper.

Westinghouse made 15 cents on every dollar for materials, according to the original 2008 construction contract. The more it spent, the more it made. That didn't change until the Pennsylvania-based company agreed in 2016 to finish the nuclear reactors for a fixed price.

In the case of the half-inch nuts, for instance, the dramatic price difference expanded Westinghouse's profit margins exponentially. The company stood to pocket $17,100 by buying a thousand nuts for $114 a piece. It only made $330 for the same number of parts at $2.20.

Westinghouse fully controlled what was purchased and when it was acquired. For years, it got paid as deliveries arrived on site. So the company mass-ordered materials years before they were ever needed, engineers said.

On many large-scale projects, such as nuclear power plants, there's good reason to order parts ahead of time. It prevents shipping delays from stalling an already long and complex construction process.

But Westinghouse officials made purchasing decisions for V.C. Summer based on what South Carolina regulators later recognized as incomplete designs and unreliable schedules.

Westinghouse's new reactor design, the AP1000, represented a new generation of safer and cheaper nuclear reactors. But Westinghouse had never built one before. Engineers said the company had little grasp of how many pumps, valves or rolls of electrical wiring were needed to finish the reactors. They had only a rough idea of when supplies would be put to use.

"The material would be shipped way ahead of the design and nobody would even check to see if it made sense," said one of the V.C. Summer engineers.

The result can be found today in the piles of rebar, electrical conduit and more fragile parts

stashed throughout the construction site. Some would have gone unused even if the reactors were finished, engineers said.

"It's unbelievable how much material was duplicated and stacked up," one of the engineers said.

**'Out of their league'**

As Westinghouse and other contractors acquired billions of dollars of material near Jenkinsville, questions arose about whether the companies were properly storing and tracking all of the supplies.

Westinghouse wasn't in the business of managing vast orders and long supply chains. The company designed nuclear technology for decades, but it didn't handle the engineering, purchasing and construction for large-scale building projects.

That was until Westinghouse signed contracts to oversee the construction of four new AP1000 nuclear reactors at V.C. Summer and Plant Vogtle near Augusta.

"They were completely out of their league," an engineer from V.C. Summer said. "It was a combination of ignorance, arrogance and incompetence."

By the summer of 2015, Westinghouse and the other contractors lost track of a large portion of the supplies offloaded at the sprawling construction site. An audit by Bechtel, one of the country's largest construction and engineering firms, showed less than half the materials in the fields and warehouses at V.C. Summer were properly inventoried.

Equipment was in danger of being ruined without proper maintenance, the audit reported. Shoddy records raised the possibility that material was purchased repeatedly because workers couldn't find parts already in storage.

At the same time, construction workers griped about welding rods and other supplies not being available when they needed them.

SCANA and Westinghouse were so focused on the slipping construction schedule, the audit said, there was little consideration given to the overall cost of the project.

Thousands of feet of costly rebar were wasted in past years, one engineer said, as the construction effort struggled with repeated delays. The steel rods — used to reinforce concrete

— were ordered early, but as they sat in the supply yard the material's identification tags wore off in the wind and rain.

As a result, workers at the site marked the rebar as unusable, engineers said, and Westinghouse paid to have an unknown amount replaced. Those engineers couldn't understand why the steel kept piling up as ironworkers complained about a lagging supply.

One engineer estimated up to 100,000 feet of rebar — the length of more than 300 football fields — was at risk by the time he and other workers identified the problem.

The paperwork could have been retraced and the rebar used, engineers said. But before that was done, piles of the expensive steel were scrapped for a small percentage of the original price.

The parking lots at V.C. Summer now sit empty. The huge blue crane that towers over the site is idle. The trailers that served as office buildings are vacant.

But the billions of dollars in unused supplies remain, as lawmakers, utility officials and state regulators decide who should foot the bill for one of the biggest failures in South Carolina history.

Reach Andrew Brown at 843-708-1830 or follow him on Twitter @andy_ed_brown.

**Andrew Brown**